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# IS THE

INFOSouth  
MONTHLY ALERT

MONTH May 97

ITEM # 339

 FOREST

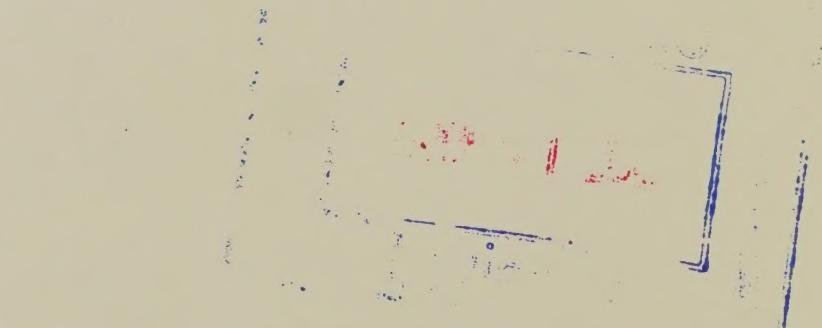
# HEALTHY?



## NORTH CENTRAL REGION



**United States  
Department of  
Agriculture**



In cooperation with:

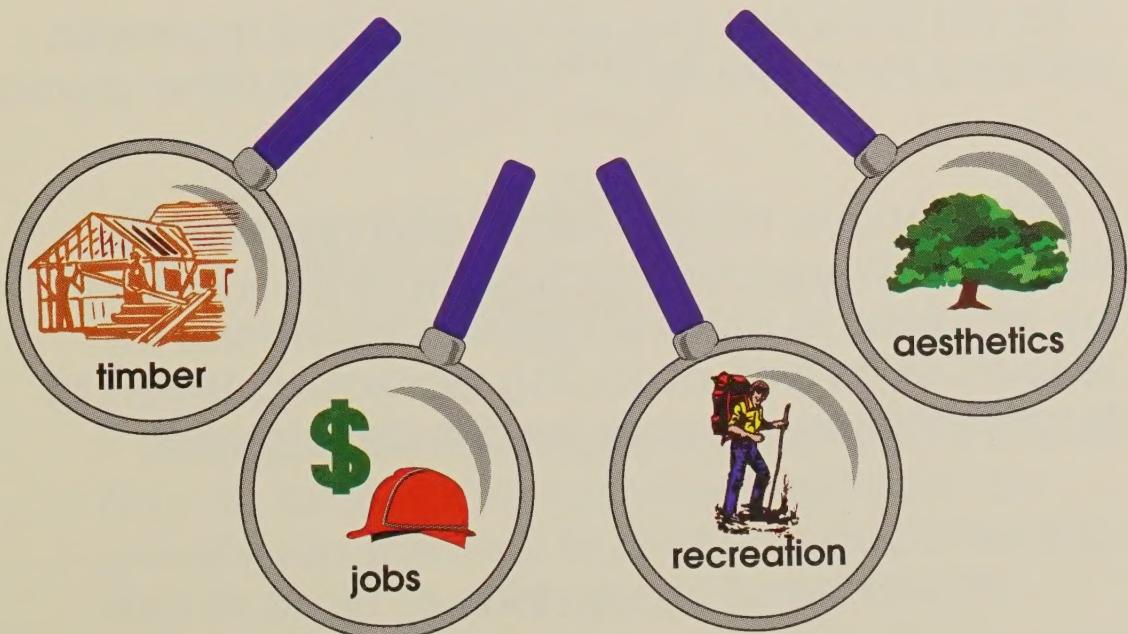
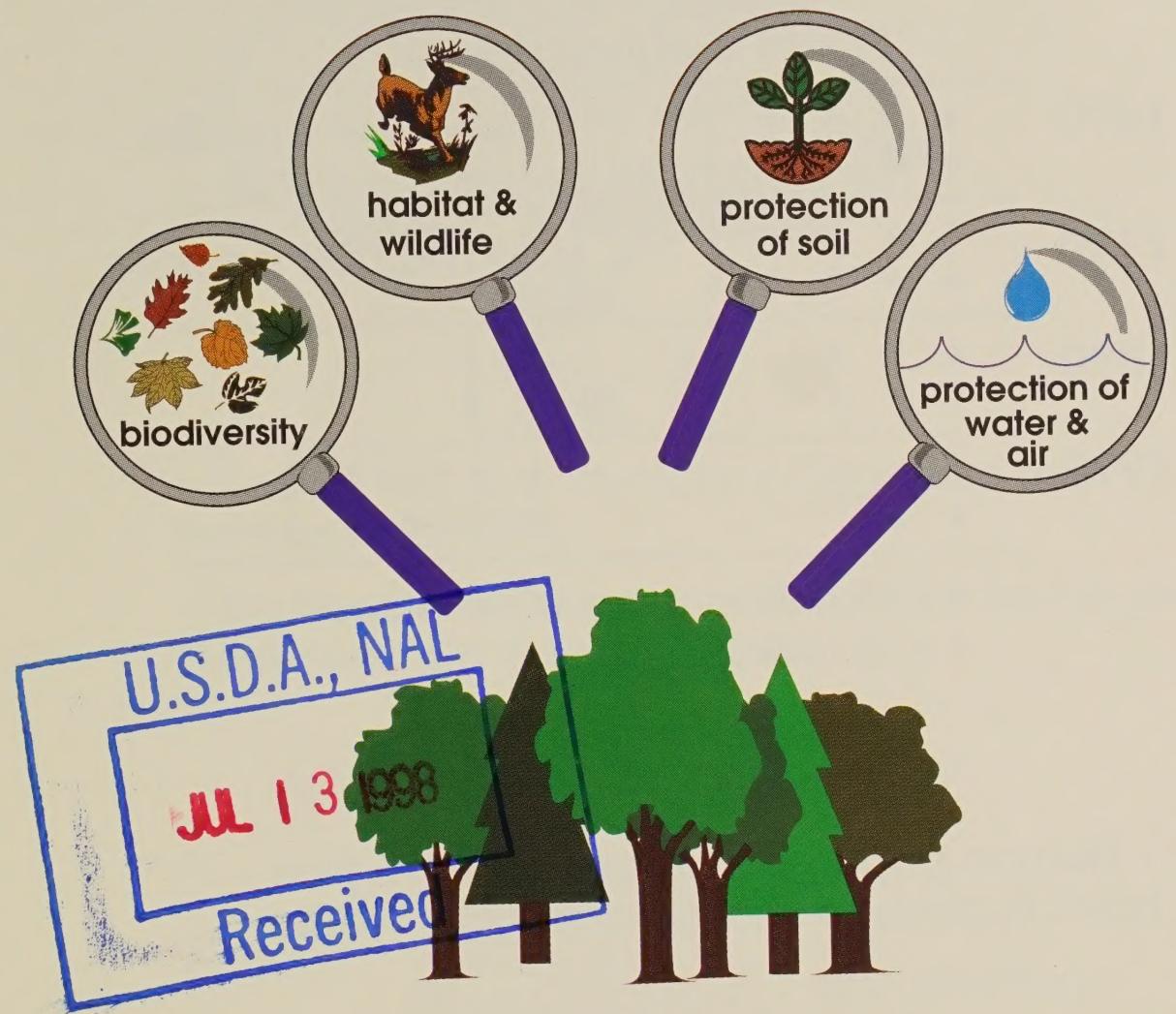
**US Department of Agriculture  
Forest Service**

and

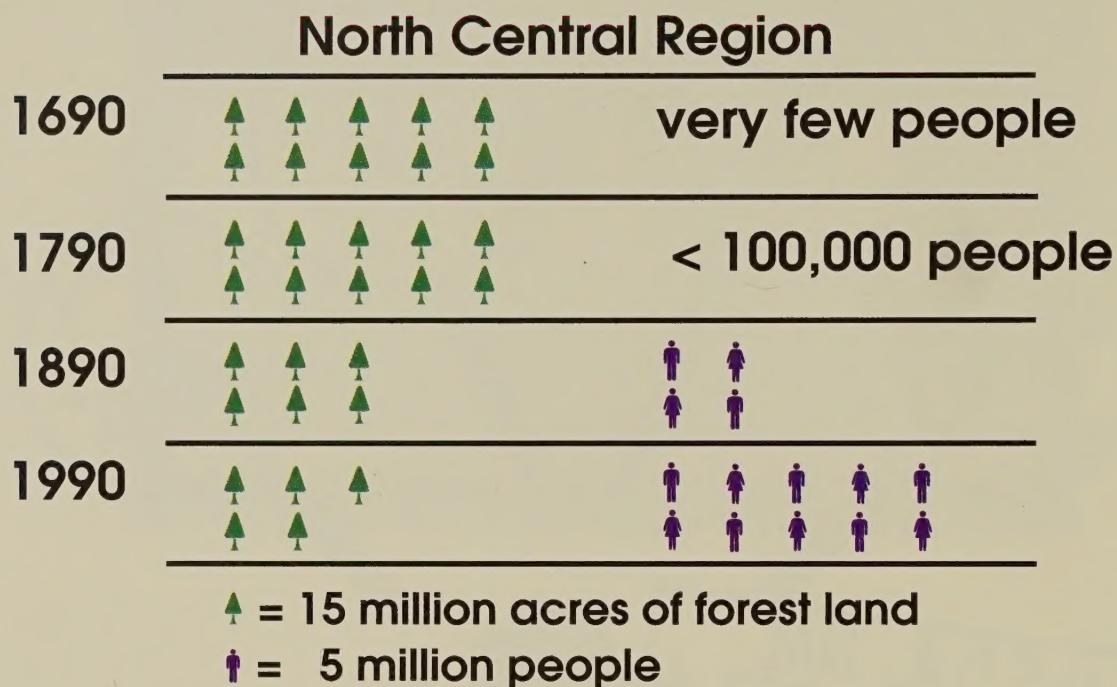
**State Forestry Agencies**

**1997**

# A healthy forest gives us... .

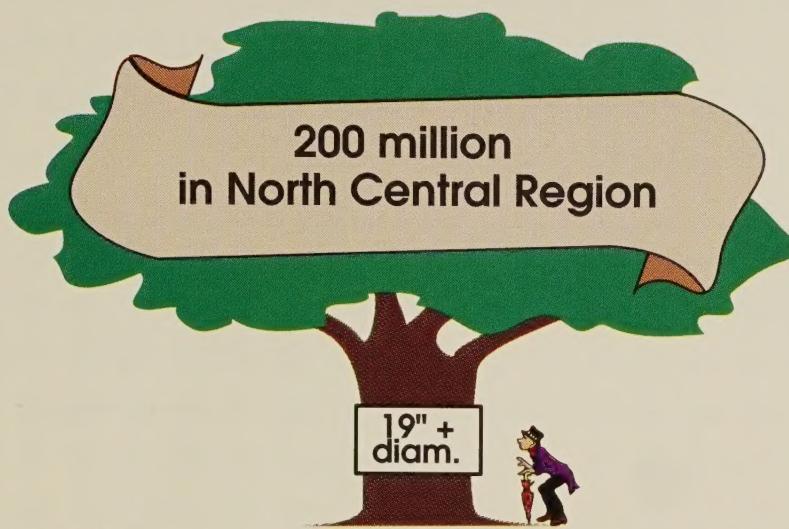


# How much forest is there?



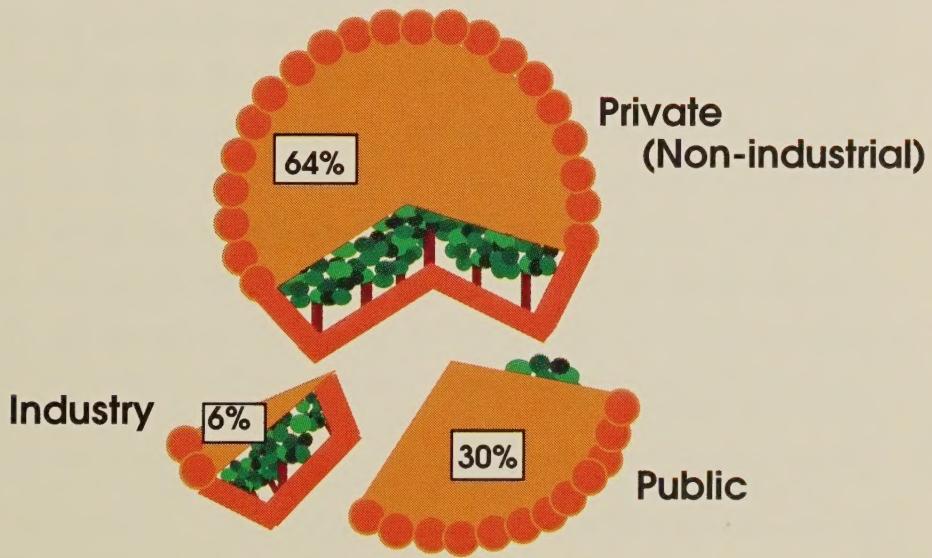
- Human population levels in this region have increased sharply since the 1600s.
- Forest area has decreased as land has been cleared for agriculture, housing, and other purposes.
- In the future, human population levels will likely continue to increase, and the forests will be required to meet additional demands for resources as well as facing increasing levels of fragmentation as more land is developed.

# How many big trees are there?



- Since 1980, the number of big trees has increased by 55%
- Big trees are increasing in number because the forests are getting older.

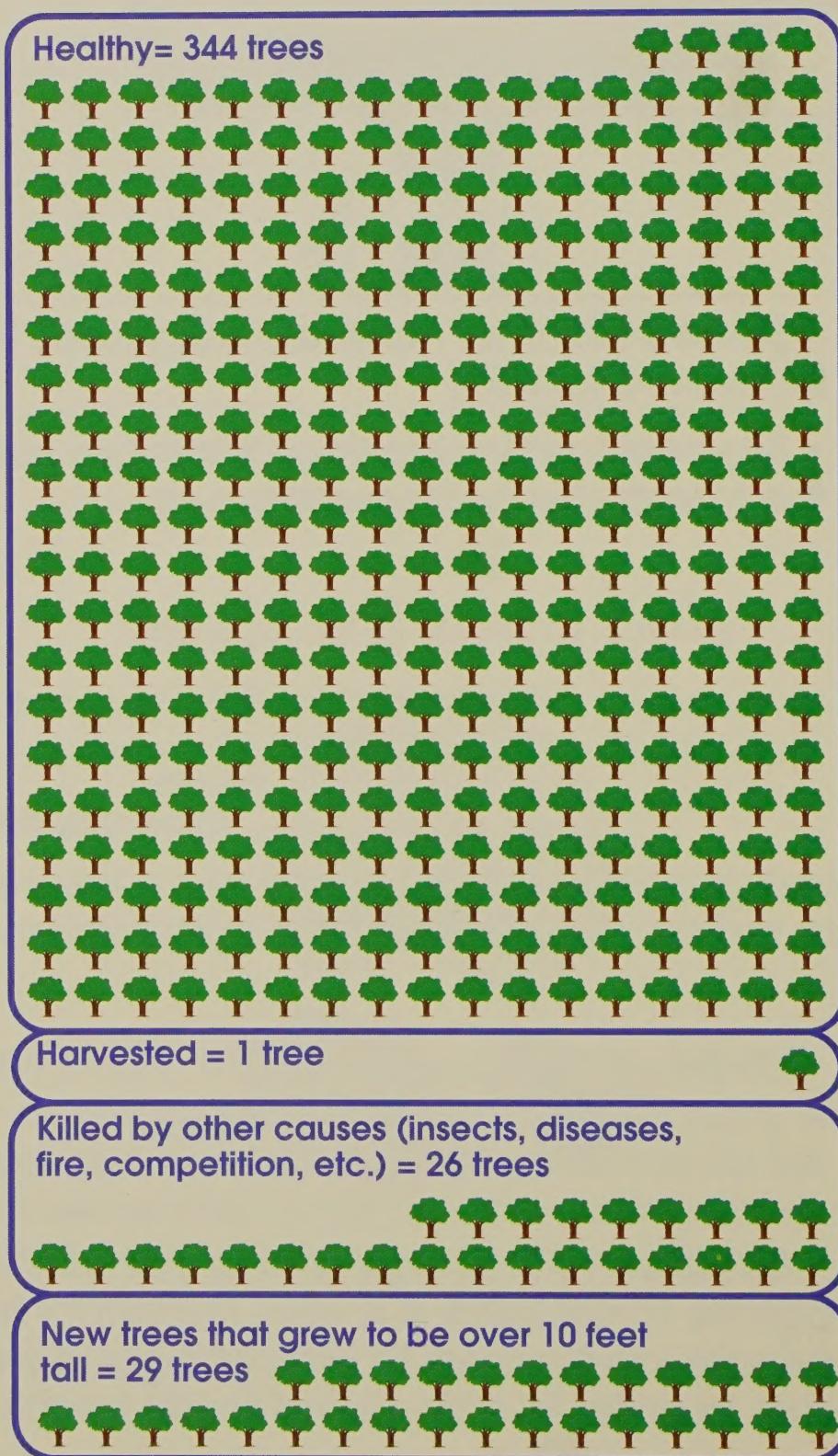
# Who owns the forest?



- Because of the large amount of non-industrial private forest land, it is very important for private landowners to practice good stewardship in order to safe-guard forest health.

# The fate of forest trees

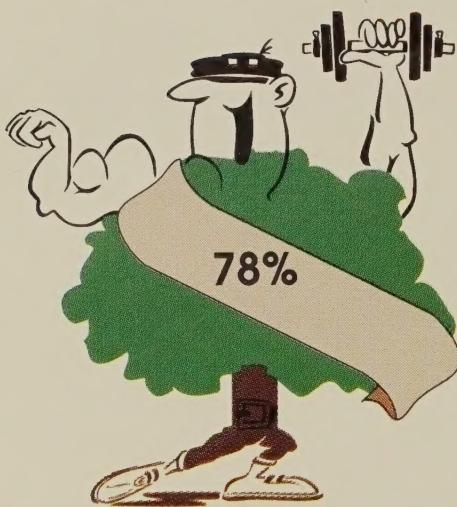
There are 52 billion trees over 10 feet tall in the North Central Region. Let's look at the fate of 400 representative trees in a typical year during the last decade:



Trees are stressed by and die from a variety of causes. Some common reasons include:

- **Old age:** Trees, like humans, eventually get old and die.
- **Competition:** Trees compete for food, light, water, and space.
- **Fire:** Arson and burning of debris are the leading causes of fire in this region. During the last 10 years, the region averaged 9,500 fires per year with 127,000 acres burned per year. Close to 82% of all acres burned in the North Central Region occurred in Minnesota and Missouri.
- **Weather:** Drought, flooding, frost damage, ice damage, and strong winds all stress or kill trees.
- **Pests:** There are numerous insects and diseases, both native and non-native, that stress and kill trees. Insects and diseases that are currently important problems in this region include gypsy moth, Dutch elm disease, oak wilt, bark beetles, and spruce budworm.
- **Pollutants:** In the North Central Region, elevated concentration of ozone during the summer months is causing visible injury to plant leaves.

# How do the trees look?



Most trees have no damage.



Some trees have wounds or damages on them. This does not mean that the damage is necessarily fatal.

On average, about 5% of the twigs and branches in a tree's crown are dead.



 Dead  
 Live

This amount of dead branches and twigs is normal; 30% is considered serious for a tree.

## Overall, the forest is in good condition.

Percent of trees over 10 feet tall that die annually from all causes in the North Central Region.



Percent of trees that become new saplings annually in the North Central Region.

In a healthy forest you will still see dead and dying trees. Trees die as a natural part of life in the forest. Dead and dying trees are more common in some places due to old age, poor soils, or weather extremes. In fact, having some dead trees in the forest is beneficial for wildlife habitat.

# What about trees in cities?

- Size of urban forest in US: 93 million acres
- Number of urban trees in US: 610 million
- Value of urban trees in US: \$250 billion
- Most frequently planted urban trees in US in rank order:

Norway maple  
flowering pear  
linden  
green ash  
honey locust  
red maple

- Average life expectancy of urban trees in US:

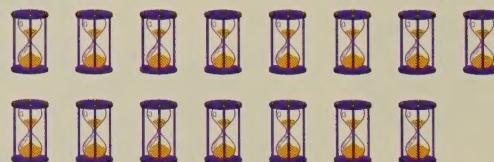
Downtown areas



City average



Rural areas



= 10 years of life

- Common stresses on urban trees:

pollution  
nutrient deficiencies  
drainage problems  
insects

salt  
soil compaction  
construction  
diseases



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# How do we know about the health of the forest?

No single measurement can summarize forest health. Instead, we need to look at a wide set of indicators which together serve as a reflection of existing conditions. Repeated monitoring of the forest over time allows us to identify trends in forest conditions and evaluate the effectiveness of our actions.

Information about forest health is obtained in a variety of ways. The USDA Forest Service conducts a program of Forest Inventory and Analysis, which provides information in each state on rates of tree growth and death, harvesting, and changes in forest types and tree species. The Forest Service and state agencies conduct regular ground and aerial surveys of forest damage and the causal agents, both in permanent plots and in other forest areas. Universities, private industry, and environmental groups cooperate with governmental agencies on a variety of forest research projects.

One major program aimed at understanding forest health is a joint federal/state program called the Forest Health Monitoring Program. This national program was developed in 1990 and is under the administration of the USDA Forest Service. It includes active participation of state foresters, other federal and state agencies, and universities. The program goal is to monitor, assess, and report on the status, changes, and long-term trends in the health of our nation's forests. The program involves a network of permanent plots and other off-plot areas that are regularly visited to monitor tree vigor, crown condition, and signs of damage. On a subset of the plots, plants are monitored for damage caused by ozone, a common gaseous pollutant. Structure of the plant communities and presence of lichens (pollution-sensitive life forms that are a combination of algae and fungi) also are evaluated on a subset of the plots. Currently, permanent plots are established in 19 states, with plans to expand the program to additional states in the future. In the North Central Region, participating states are Indiana, Michigan, Minnesota, and Wisconsin.



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# Want to know more?

**USDA Forest Service  
Northeastern Area State & Private Forestry  
St. Paul, MN (612)-649-5261**

**USDA Forest Service  
North Central Forest Experiment Station  
St. Paul, MN (612)-649-5139**

**Illinois Dept. Natural Resources  
(217)-782-2361**

**Indiana Dept. Natural Resources  
(317)-232-4107**

**Iowa Dept. Natural Resources  
(515)-281-8656**

**Kansas State Extension & Forestry  
(913)-537-7050**

**Michigan Dept. Natural Resources  
(517)-373-1275**

**Minnesota Dept. Natural Resources  
(612)-296-5971**

**Missouri Dept. Conservation  
(315)-751-4115**

**Nebraska Dept. Forestry, Fisheries, & Wildlife  
(402)-472-2944**

**North Dakota State Forest Service  
(701)-228-5422**

**South Dakota Dept. Agriculture  
(605)-773-3623**

**Wisconsin Dept. Natural Resources  
(608)-266-0290**



Or visit:

<http://willow.ncfes.umn.edu>